



Echo by Web

Normal & Reference Values, Diagnostic Ranges



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Transthoracic
go to: Transesophageal

Normal Values

Data Origin: 43 normal subjects, age 42±13 yeas (range: 20-74 years), body surface area: 1.8±0.2 m², mean arterial pressure: 94±9 mmHg, mean heart rate: 70±10 bpm (range: 52-93).

M-Mode Examination, Left ventricle [Mean±SD]

End-diastolic diameter	49±4 mm
End-sys tolic diameter	30±5 mm
Fibre fractional shortening	38±6 %
Interventricular septum thickness	9±1 mm
Septal systolic thickening	51±19 %
Postero-lateral wall thickness	8±1 mm
Wall systolic thickening	94±30 %
Hypertrophy index	0.34±0.05
Mass index	91±20 g/ m ²
End-systolic meridional wall stress	56±17 10 ³ dynes/cm ²

2D Exam, left ventricle [Mean±SD]

	4-Chambers	2-Chambers	Biplane
End-diastolic volume (monoplane area/length, Dodge correction)	91±21 ml	102±18 ml	95±18 ml
End-diastolic volume index			55±9 ml/m ²

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End-systolic volume	38±11 ml	41±14 ml	39±11 ml
End-systolic volume index			23±6 ml/m ²
Ejection fraction	58±7 %		59± 7
Stroke volume			56±14 ml
Stroke volume index			32±7 mlm ²
Cardiac output			3.8±0.9 lt
Cardiac index			2.2±0.5 lt/m ²
Mitral anulus, end-systole	2.5±0.5 cm		

2D Exam, left atrium [Mean±SD]			
	4-Chambers	2-Chambers	Biplane
Supero-inferior axis, end-systole (= 1 frame before mitral valve opening)	4.7±0.5 cm		
Transverse axis, end-systole	3.9±0.5 cm		
End-systolic area	19±3 cm ²		
End-systolic volume (area/length)	58±17 ml		
End-diastolic area (end of ECG P wave)	14±4 cm ²		
End-diastolic volume	37±15 ml		
Minimum area (1 frame before atrial expansion)	10±3 cm ²		
Minimum volume	21±10 ml		

Diagnostic & Parameter Ranges for the Report

Left Ventricular Ejection Fraction [Modified Simpson Formula]

Normal	55 – 65 %
Mildly reduced	45 – 55 %
Moderately reduced	35 – 45 %
Severely reduced	< 35 %

Aortic Valve Stenosis:

Grade	Mean Gradient(mmHg) - Estimated Area (cm²)	
Mild	< 20	> 1.4
Moderate	20 – 50	0.8 – 1.4
Severe	> 50	< 0.8

Mitral Valve Stenosis:

Grade	Mean Gradient (mmHg) - Estimated Area (cm²)	
Mild	< 6	> 1.5
Moderate	6 – 16	1 – 1.5
Severe	> 16	< 1

Wall Motion (16 segments model) and Scoring:

Walls	Asynergy Score
A Anterior	0 Not visualized
AL Antero-lateral	1 Normokinesis
SA Anterior septum	2 Hypokinesis
I Infero-Posterior	3 Akinesis
SI Inferior septum	4 Diskinesis
PL Postero-Lateral	5 Aneurysm

Asynergy index	Sum of all scores / number of visualized segments
Percent dyssynergy	Number of abnormal segments / number of visualized segments

Pericardial Effusion:

Mild	< 1 cm separation = 300 ml
Moderate	1-2 cm separation = 500 ml
Severe	> 2 cm separation > 700 ml

Exam Quality:

Good	Complete analysis of all parameters
Sufficient	Acceptable analysis of all parameters
Poor	Analysis limited to a few parameters
Inadequate	Incomplete study

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